

An Introduction to
FULLY INTEGRATED
MIXED METHODS
RESEARCH

Elizabeth G. Creamer



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"Author Elizabeth G. Creamer provides an accessible, user-friendly text for graduate students and those new to the field of mixed methods. It aims to move the field to using fully integrated designs and emphasizes the importance of the yield, particularly the meta-inferences, of mixed methods studies. Case examples from a variety of fields bring these concepts to life throughout the text."

—Leanne M. Kallemeyn, *Loyola University Chicago*

"Finally—a text that explains mixed methods research in a thorough yet readable format, one that is full of excellent examples and helpful tables and that presents a perspective that is simultaneously detailed and broad in scope."

—Laura J. Meyer, *University of Denver*

"The text is comprehensive and well written. It provides a strong background and overview of mixed methods and educates students on how to be consumers of mixed methods studies."

—Tina L. Freiburger, *University of Wisconsin—Milwaukee*

This practical book provides the tools needed to design, execute, and evaluate fully integrated mixed methods research studies. A uniting metaphor of the architectural arch helps students understand the benefits of a mixed methods approach as they consider ways to integrate the qualitative and quantitative strands at all stages of design and execution. With examples from popular media and published research, this text also includes a detailed discussion of ways to accomplish mixing methods during data collection and analysis and a separate chapter on designing and executing a realistic mixed methods dissertation.

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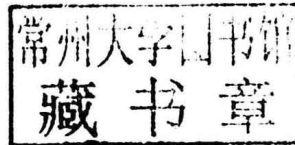


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Research

I dedicate this book to one of my high school English teachers, Naomi Manning. Increasingly aware of the advantages that came to me from attending a very strong high school in the suburbs of New York City, I want to give a “shout out” to the teacher who first introduced me to research and an appreciation for absorbing work in a quiet college library. It is from her that I learned a low-tech method for note taking on three-by-five index cards that I subsequently used in every article and book I have ever written.

PREFACE

I begin with a confession. I first started teaching mixed methods in an undergraduate course in the late 1990s, finding that Creswell's (1998) dialectical approach of "turning the story" fit well within the interdisciplinary context that was my academic home. Five years later, my disciplinary affiliation shifted to one in education and I started teaching mixed methods research design courses at both the masters and doctoral level using a foundational set of textbooks well known to the mixed methods community.

My confession is that despite teaching and doing research with mixed methods for more than twenty years, I have struggled to apply some of the most fundamental concepts that have been used to distinguish the timing and priority of studies using a mixed method design. I have never been able to figure out, for example, if the term *concurrent* applies to data collection or to data analysis or to both. Similarly, the idea of a sequential design suggests a distinction between qualitative and quantitative strands that I do not find characteristic in the most innovative studies. To further compound the matter, I have never been sure if the term *mixing* has been used principally in reference to types of data or to types of analytical techniques.

Remaining under the illusion that the error in thinking was mine, the thought of undertaking the task of writing a textbook did not occur to me until I launched an initiative to design an introduction to mixed methods research class that would be delivered online. As I developed the materials for that class, I found that none of the widely adopted textbooks seemed compatible with my goals and paradigmatic orientation. One of the available options seemed too narrowly focused on a philosophical orientation and offered too little guidance for the novice researcher. Another was decidedly more prescriptive and positivist. So much space was devoted in most chapters to an explanation of quantitative and qualitative approaches that little space was actually allocated to uniquely mixed methods ways of accomplishing a particular task, like sampling. This approach was incompatible with my growing conviction that the distinctions between qualitative and quantitative approaches in practice are far more difficult to disentangle than the rhetoric implies. I was surprised to discover how little attention was devoted in most textbooks to exploring ways to mixing and to the attention that was lavished to prescribing set designs, which at this point in the development of mixed methods could be interpreted to actually discourage rather than promote meaningful interaction between data from different sources.

In addition to mixed methods, I have long taught a graduate-level course in qualitative research. My enthusiasm for the power of qualitative research, particularly in theory generation, is evident in a number of ways in this text. One way is a repeated emphasis about the contribution to explanatory power of a genuinely inductive approach to analysis and to mixing. A second way my qualitative orientation is evident is in the conviction that opportunities for innovation are largely unplanned and in the space I devote to mixed method approaches to content analysis, grounded theory, and case study research.

CONCEPTUAL FRAMEWORK

As I pursue in further detail in the first chapter, leaders in the field are still lobbying for different definitions of what constitutes mixed methods research and, most particularly, what exactly is mixed. There is general agreement that the mixed methods labels suggest that different types of data are collected and that the two are engaged in some interactive fashion. Some leaders in the field offer the conservative suggestion that mixing or integration should occur in at least one phase (e.g., Creswell & Plano Clark, 2011), while others, most notably Greene (2007), are proponents of a paradigmatic stance that embraces a more thorough saturation of the intent to engage qualitative and quantitative strands throughout the research process.

Without suggesting that such an approach is mandatory to warrant the designation of being mixed methods, I join Teddlie and Tashakkori (2009) by adopting the terminology of *fully integrated mixed designs* or *fully integrated mixed methods* to refer to research studies where the qualitative and quantitative strands are engaged in a dialectical manner at *all* stages of the study. Fully integrated mixed method studies are executed through an ongoing iterative exchange between the qualitative and quantitative strands that invites an engagement with the unexpected and often paradoxical that cannot emerge when the mindset is driven by a singular hypothesis testing framework and a linear approach to analysis. One way I maintain the focus on integration is by illustrating different ways that this can be accomplished at each stage of the design and execution of a mixed methods study.

PURPOSE

The centering of ways to integrate qualitative and quantitative data through all phases of a research project is reflected by the title for the book, and the framework of this practical textbook is intended for use in an introductory graduate-level mixed methods research course. In part because I have largely adopted terminology that is already used widely, this textbook will be useful in setting the stage for a more advanced course in mixed methods research.

The primary purpose of the text is to provide novice researchers and those new to mixed methods the tools to design, execute, and evaluate a mixed methods research study. For a class with an enrollment of master's-level students, I envision the principal

task of the text to provide a systematic way to evaluate a mixed methods publication in order to determine its contribution to knowledge and/or practice. In my experience, doctoral students bring an interest in learning how to design a credible mixed methods study to the class.

The goals for the book include the following:

1. To provide an introductory textbook for graduate students in applied disciplines in the social and behavioral sciences that reflects contemporary views, such as that mixed methods requires integration of different data sources in multiple phases of the research process.
2. To provide novice researchers and those new to mixed methods the tools to design and execute a fully integrated mixed methods study.
3. To provide supplemental materials that will assist instructors in teaching an introductory mixed methods course.
4. To introduce the terminology associated with the methodology.
5. To illustrate ways that the qualitative and quantitative strands can be integrated at all stages of the research process.
6. To provide an extended discussion of data transformation as an analytical strategy to mix qualitative and quantitative data.
7. To propose a rubric to evaluate the quality of a mixed methods research publication.
8. To illustrate key concepts by weaving references to a set of exemplary publications across chapters throughout the book.
9. To explore the use of mixed methods approaches to grounded theory, content analysis, and case study research.

I find that almost every student who enrolls in my mixed methods class does so with an intuitive enthusiasm about the potential for collecting multiple sources of data and that their principal interest is finding models that will help them design their own research study. They want help with writing a purpose statement and research questions and with setting up a study in ways that promote the meaningful integration of their data. Experience has taught me that students appreciate a relatively jargon-light, practical textbook that is dotted with multiple real-world examples that make it possible for them to apply what they have learned to their own research interests.

AUDIENCE

The primary audience for this textbook is graduate students in applied disciplines, including all fields of education, health-related disciplines, and human development. The book also is addressed to more advanced researchers, such as postdoctoral fellows, research associates, evaluators, and those whose route to mixed methods is the product of unexpected results or the challenge to integrate qualitative and quantitative data. Regardless of the reason(s) for pursuing mixed methods research, the identification

of criteria to evaluate quality at each stage of a research project and the emphasis on illustrating ways to build in methodological transparency will be instructive to those seeking to design a persuasive mixed methods research proposal or report.

As I have written this textbook, I have tried to keep my eye on graduate students as my principal audience. When faced with a decision about what to include and what to exclude, I defaulted to the question: Is this something a newcomer to mixed methods would need to know to launch a credible mixed methods study? With this in mind, I avoid lengthy detours to synthesize and cite a large body of literature about key topics, preferring instead to acknowledge key pieces from the literature and to use exemplars to illustrate key design features.

Because I do not use a framework that first reviews the fundamentals assumptions about the different approaches taken in qualitative and quantitative research approaches at each phase of the design and execution of a research study, this book will be most useful in a course where the focus is on mixed methods or in a survey course where it is one of several required textbooks. Those who bring at least a foundational knowledge from an introductory research course will be in the best position to benefit from this book. It is less critical that readers know the ins and outs of the two approaches than it is to understand what is required to design a credible research project that has the potential to generate knowledge and/or contribute to practice.

DISTINGUISHING FEATURES

A number of features distinguish this text from other textbooks that might be selected for an introductory course in mixed methods research design. First is the repetition and expansion of the uniting metaphor of the architectural arch to represent the potential to maximize the benefits of a mixed methods approach by considering innovative ways to integrate the qualitative and quantitative strands at all stages of the design and execution of a study. Switching from an emphasis on process to product in the last chapter, the arch also proves helpful to visualize the types of conclusions that are drawn in a mixed methods study.

Secondly, the book turns repeatedly to the question of how to produce and report on high-quality mixed methods research, including by devoting a separate chapter to consider ways to evaluate the quality of a mixed methods research publication. In this chapter, the Mixed Method Evaluation Rubric (MMER) is introduced to help the novice single out models worthy of replication. In addition to items related to transparency of the rationale for using mixed methods and a way to assess the methodological grounding, the MMER contains one item to measure the amount of mixing across the phases of the research process and a second to evaluate the engagement with diverse perspectives.

A third feature of the textbooks reflects an intentional decision to avoid introducing a whole new, complicated lexicon of mixed methods terms and designs. Instead, I offer a bridge to other methodological texts by relying on terminology that is already well ensconced in the discourse about mixed methods.

Fourthly, the text is unusual in that it provides a discussion of strategies to accomplish mixing of qualitative and quantitative data during analysis, including through the process of data transformation that extends across chapters. This is a much more detailed discussion than is available elsewhere.

A fifth distinguishing feature is that I have woven repeated references to a small set of readily available journal articles from a wide variety disciplinary journals as exemplars. I have prioritized methodological transparency in their selections. I selected the exemplars with the intent of providing models of studies worthy of replication and doable within the time frame and resources typical for a doctoral student. They were not selected to illustrate a specific set of mixed methods designs but were situated in chapters in order to provide examples of different ways to accomplish a procedure like sampling or mixing during analysis. The presence of so many examples with a qualitative priority reflects my own constructivist mindset and offsets the criticism that mixed method approaches are most adaptable to a quantitative mindset. The fact that the exemplars appeared in a diverse set of journals demonstrates that while a staple in educational and health-related research, mixed and multimethod approaches have been adopted in a remarkably broad range of academic fields.

None of the final set of articles featured as exemplars is authored by a figure well known to the mixed methods community. Two of the exemplars report on the results of dissertation research. This supports my contention that while foundational knowledge is an advantage, advanced expertise in mixed methods is not required to execute innovative work. This furthers the argument that it is feasible for a novice researcher with foundational knowledge of the literature to design a credible mixed methods study.

In chapters that lack a reference to an exemplary research publication, I have provided examples of some innovations reported in popular literature. The suggestions for supplemental class activities in several chapters involve developing research questions or a proposal for a research topic that has surfaced in the popular media, including an example about the use of robots to promote learning in autistic children. I have included examples from the popular media not only to pique interest but also to demonstrate the ingenious ways that researchers from multiple disciplines have come together to solve real-world problems in a collaborative manner.

ORGANIZATION OF THE BOOK

The book is organized in four parts. The first part explores foundational issues that are well known to members of the mixed methods community. The contribution of this portion of the text is framing the discussion relative to fully integrated mixed methods designs. Part 1 includes a chapter about the defining characteristics of mixed methods research and a second that reviews a classic typology of rationales that have been offered for using a mixed methods approach. The third chapter offers an original approach to framing the discussion about paradigms. Rather than linger on what now seems an outdated argument about the incompatibility of qualitative and quantitative approaches, it identifies four strains of paradigmatic reasoning

that are compatible with mixed method approaches and reflects about the role each might play in how research is designed and conducted. The fourth chapter explores distinguishing characteristics of mixed methods research designs, giving more attention to priority and less to timing than has normally been awarded. As compared to subsequent chapters, the first four chapters are firmly rooted in foundational material that marked the emergence of a community of scholars that self-identified as mixed methods researchers.

The original contribution of the text begins to emerge most clearly as the discussion turns in Part 2 to the topic of mixing. The contribution of this section is to provide a more extended discussion of mixing, with many examples, than has been previously available.

The first chapter in Part 2 considers strategies for mixing prior to analysis, particularly during sampling and data collection. The remaining two chapters in this section provide an in-depth exploration of mixing during analysis, including through data transformation.

The third part of the book contains two chapters devoted to issues of quality. This section addresses practical dimensions of mixed methods and includes a chapter about how to evaluate the quality of a mixed method publication and suggests approaches to designing a mixed method research proposal or dissertation.

The last part of the book is devoted to addressing some lingering controversies about mixed methods, including the long-standing emphasis on a prescribed set of designs. It deconstructs the logic of combination that underlies so much of the discourse about mixed methods. Further innovation is evident in this chapter in suggestions about ways to capture the centrality of mixing in figures and flowcharts. An additional contribution of the final chapter is the introduction of the idea that attention to meta-inferences provides a window into how a study was designed.

ORGANIZATION OF EACH CHAPTER

Each chapter is organized in a similar manner. They begin with a list of goals that could quickly be translated to serve as a study guide. The chapters end with a bulleted summary of key points, a list of the terms that were introduced in the chapter, suggestions for supplemental activities to use in class, and recommendations for assigned reading to accompany the chapter. The glossary terms are highlighted and followed by a definition, which appears in italics. A glossary summarizes the terms that are introduced in the chapters.

TAKING ADVANTAGE OF THE TEXT

In addition to the recommendations for supplemental activities and readings and the exemplars, several additional features of the text are designed to support the goal of providing novice researchers and those new to mixed methods with the tools to design, execute, and evaluate a mixed methods research study. These features include the use of a template to summarize the exemplars, a list of key points at the conclusion

of each chapter, and supplemental materials that are available through the book's website.

Templates. In many chapters, I offer an extended analysis of either a single or multiple exemplars to describe options for different procedures, such as mixed method approaches to sampling or ways to mix data during analysis. In place of the more widely used flow chart that visualizes design elements of a study but fails to consider the outcomes or inferences produced, I use a standard template to succinctly summarize key features of each of the chapter exemplars. The template contains the following information about each of the exemplars: (a) the rationale or reason for using mixed methods, (b) if the article reflects a qualitative, quantitative, or mixed priority, (c) timing of data collection, (d) timing of data analysis, (e) phases where mixing occurs, (f) inferences derived from the qualitative phases, (g) inferences derived from the quantitative phases, (h) meta-inferences, and (i) expressed value-added of using a mixing methods approach. Completed templates for all of the chapter exemplars appear in Appendix D.

The template used to summarize key features of each of the chapter exemplars offers a way to structure a summary of an article that is more inclusive than the conventional flowchart. The template maintains a balance between an interest in dissecting key facets of the way the data for the research project were collected and analyzed with an interest in the type of inferences and meta-inferences produced. This draws attention to the value-added to a mixed methods approach and what insight is actually gained by linking conclusions from the qualitative and quantitative strands.

The article template will be useful on several fronts. It can provide a useful way to facilitate discussion about additional articles that might be assigned. It is also useful as a form to collect a structured set of data that would facilitate cross-case comparisons in a content analysis or literature review.

A list of key points appears at the end of each chapter. These are listed in a chapter-by-chapter summary that appears in a document in the appendices. The key points will prove useful as guides for classroom discussion, for review of course content, or to structure formative and summative evaluations in the form of multiple-choice quizzes or short-answer and essay exams.

Additional supplemental materials. Additional materials to support course instruction are available on the book's website. These include a sample syllabus with a recommended list of assigned reading. This also includes sample quiz questions for each chapter and a list of recommended individual and group assignments that can be used as class activities.

RELATED ASSIGNMENTS

The organization of this text into ten chapters creates an opportunity for instructors to tailor the course in ways that suit their interests and the students' skill levels. For a semester-long course that contains fifteen weeks, instructors might find it beneficial to end the course by allocating time to mixed methods approaches to different quantitative traditions (such as the randomized clinical trial) or to qualitative traditions

(including case study, grounded theory, content analysis and systematic reviews, the critical incident technique, action or participatory research, and/or evaluation and assessment).

Several additional assignments are compatible to the sequencing of information in the text. For doctoral students, the supplemental activities are interlinked in a way that is conducive to an assignment that I use regularly in the classes I teach: to prepare a content analysis of the use of mixed method approaches in journals in a single disciplinary area such as math education, higher education, leadership, nursing, or library science. An annotated bibliography or literature review about how mixed methods have been used to study a particular topic, like playground safety or active learning, would be suitable for a class containing largely master's students. Further exploration of examples of mixed method and interdisciplinary research appearing in the popular media would be appropriate for master's students as well.

There may be an advantage to not being one of the first generation of scholars to pioneer the development of mixed methods as a field of study. I have learned that there are other authors of more recent works who have spotted the same ambiguity in language about mixed methods designs that has troubled me for such a long time. I envision this text as a bridge between the first generation of foundational textbooks that had such a profound impact of practice and the next generation of researchers using technology and mixed methods in ways that could not possibly have been imagined by combatants in the 1980s who underscored the distinctions between qualitative and quantitative approaches. This textbook aspires to move the conversation forward by de-emphasizing a set of prescribed designs and by accepting the challenge to center attention on the explanatory power gained from the meaningful integration of different sources of data and analytical procedures.

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Undertaking a textbook like you will find unfolding in the subsequent ten chapters is not possible without the support of many layers of personal and editorial support. My spouse of thirty-five years, Don, receives the first round of kudos for bearing with me in the endless conversations I no doubt initiated to help unravel the logic of each and every chapter and, eventually, to tolerate my travelogue about the many rounds of revisions and copy editing. He is still wondering if I will ever actually finish the text!

I have benefited beyond measure from the guidance of two editors at SAGE. The first, Vicki Knight, guided me through the proposal stage and the writing of the first six chapters of the book before she was lured away to her next life as a retiree. Vicki was the one who taught me to look at a set of reviews and consider all the things that might have been said that weren't (e.g., the organization is poor, instrumental pieces of information are missing). I miss her sage advice and wicked sense of humor but feel fortunate to have been assigned to a second editor, Leah Fargotstein, with the experience to guide me through the steps in the process of moving from a manuscript to a final product. I have relied heavily on both Vicki and Leah for practical guidance about how to interpret reviewers' comments and how to translate those recommendations into revisions that keep to the major themes of the text. It was their network of connections that produced the list of the reviewers.

An Introduction to Fully Integrated Mixed Methods Research has benefited from the insight offered by reviewers that teach in very diverse settings. Some approach mixed methods as part of a survey course, while others teach it, as I do, in a stand-alone course. One set of reviewers stuck with me through the first six chapters, while a second set agreed to come on board to provide feedback about the remaining four chapters. After the manuscript was completed, a dedicated set of reviewers took on the even more challenging task of evaluating and providing feedback about the document as a whole. The contribution of these reviewers cannot be overstated. They have fueled many exciting ideas for additions and revisions and reinforced the value of some of the features that most distinguish this text. While it has not been possible to fully take advantage of all their suggestions, my brain continues to churn as I look to the future and think of where my mind might travel next.

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